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Amendment and Response to First Substantive Office Action  
Patent Application No.: 10/767,144

## RESPONSE

In the Office Action mailed on November 16<sup>th</sup>, 2006, Claims 2-3, 7-12, and 14-18 were rejected; and Claims 4-6 and 13 were the subject of an objection. These latter claims have been amended to overcome the objection. Respectfully, it is submitted the remaining claims were erroneously rejected as allegedly anticipated by the patent to *Swanson et al.*, United States Patent No. 5,947,457 ("*Swanson*") as explained below.

### Claim 2

Claim 2 is an independent claim directed to a vibration absorber having a base mass, an absorber mass, and at least an element connected between the base mass and the absorber mass. *Swanson* does not teach nor suggest the subject matter of Claim 2, which also requires the following:

- a magnetic flux path through the base mass, the absorber mass, and the element;
- the magnetic flux being changeable in response to a change in frequency from the vibrating device; and
- the element being switchable in response to a change of the magnetic flux in the magnetic flux path,
- whereby the vibrations over the range of frequencies from the vibrating device may be absorbed by the switchability of the element in response to the changeability of the magnetic flux in the magnetic flux path.

### *Swanson* Does Not Teach Nor Suggest the Magnetic Flux Path as Claimed

*Swanson* does not teach nor suggest a magnetic flux path through the base mass, the absorber mass, and the element as presented in the claimed subject matter. The Office Action cites "figure 5" of *Swanson* for support that *Swanson* includes a magnetic flux path as claimed. Figure 5, like all the figures of *Swanson*, includes dashed lines indicating "lines of flux". See *Swanson*, col. 6, lines 44-49; and col. 14, lines 35-50. None of these dashed lines nor any description in *Swanson* teach or suggest that a magnetic flux path passes through the base mass, the absorber mass, and the element. Thus, *Swanson* does not teach nor suggest the inventive subject matter of Claim 2.

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Swanson Does Not Teach Nor Suggest Magnetic Flux That Changes  
Responsively to Changes in Frequency of the Vibrating Device

*Swanson* also does not teach that the magnetic flux is changeable in response to a change in frequency from the vibrating device as set out in Claim 2. The Office Action cites *Swanson* col. 5, lines 29-36 and col. 6, lines 50-70 as support. Neither of these citations, however, nor any other parts of *Swanson* teach or disclose magnetic flux that changes in response to a change in frequency of the vibrating device.

*Swanson* at col. 5, lines 27-38 states:

Means for driving the piston 36a preferably includes a coil 40a and a magnet-and-pole assembly 38a which is comprised of at least one permanent magnet, and more preferably, two permanent magnets, such as ring magnets 42a, 42a' and pole pieces, 44a, 44a', 44a''.

The second tuning mass Mt is comprised partially of mass of the piston 36a, which is preferably centered and precompressed by centering springs 46a, 46a'. In this embodiment, the piston 36a is preferably cylindrical and annular-shaped and is manufactured from a highly electrically conductive (yet nonmagnetic) material, such as copper or brass, and is inductively driven by the coil 40a.

This statement from *Swanson* does not teach nor suggest a magnetic flux that responds by changing when the frequency of the vibrating device changes. The statement from *Swanson* makes no mention of the vibrating device nor the frequency of its vibrations.

*Swanson* at col. 6, lines 50-63 states:

Moreover, energizing the wound coil 40a with an alternating current causes (induces) an electrical current to flow in the "hoop" direction about the electrically-conductive piston 36a because of the close proximity of piston 36a and wound coil 40a. This oscillating induced current (above a break frequency) in the piston 36a creates a dynamically oscillating magnetic field which interacts with the static magnetic flux created by permanent magnets, 42a, 42a' and the dynamic flux created by coil 40a. This interaction causes the piston 36a to be driven axially (along the acting axis). It should be noted, that regardless of the direction or axial location of the piston 36a relative to the wound coil 40a, a force can be generated to either assist or retard the motion of piston 36a.

(Emphasis added). This statement from *Swanson* does not teach nor suggest a magnetic flux that changes when the frequency of a vibrating device changes. Rather, this statement from *Swanson* explains that a wound coil is "energized" with AC current that

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creates a magnetic field that interacts with flux created by permanent magnets and by the coil. No mention is made of the vibrating device nor the frequency of its vibrations in the cited statement. There is no such mention because the magnetic flux in *Swanson* does not change based on changes in frequency of the vibration of the device. Thus, *Swanson* does not teach nor suggest the inventive subject matter of Claim 2.

*Swanson* Does Not Teach Nor Suggest An Element that Switches in Response to a Change of the Magnetic Flux in the Magnetic Flux Path

Another failing of *Swanson* with respect to Claim 2 is that *Swanson* fails to teach or suggest an element that is switchable in response to a change of the magnetic flux in the magnetic flux path as claimed. The Office Action offers no citation to *Swanson* or any other reference for its alleged anticipatory finding on this point.

At least for the reasons presented above that *Swanson* does not teach nor suggest a magnetic flux path as claimed and magnetic flux that changes responsively to changes in frequency of the vibrating device, *Swanson* does not teach an element that switches in response to a change of the claimed magnetic flux in the claimed magnetic flux path.

*Swanson* Does Not Teach nor Suggest a Vibration Absorber that Absorbs Vibrations Over a Range of Frequencies

*Swanson* presents basically a two-degree of freedom vibration absorber with its two operating frequencies set by the values of the various stiffness elements and masses of the absorber (springs, masses, stiffness volumes). *Swanson's* absorber would have to be completely overhauled in order to change its two operating frequencies. Once *Swanson's* elements are set, *Swanson's* absorber only has its two principal resonance frequencies. The use of magnetics in *Swanson* does not alter these tuned elements; therefore, there is no interaction in *Swanson* between the magnetics and the tuned operating frequencies of the *Swanson* absorber.

In contrast, the whereby clause of Claim 2 explains that the claimed vibration absorber absorbs vibrations over a range of frequencies. The absorption of vibrations over a range of frequencies by the claimed vibration absorber is accomplished by a change in the magnetic flux responsive to a frequency change in the vibrations from the

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device, and a switch by the element in response to the change in the magnetic flux. At least for the reasons presented above that *Swanson* does not teach nor suggest:

- a magnetic flux path as claimed,
- magnetic flux that changes responsively to changes in frequency of the vibrating device, and
- an element that switches in response to a change of the claimed magnetic flux in the claimed magnetic flux path,

*Swanson* does not teach nor suggest a vibration absorber as claimed that absorbs vibrations over a range of frequencies. In sum, Claim 2 is allowable as presented.

Claim 14

Claim 14 stands rejected as allegedly anticipated by *Swanson*. Despite the erroneous of the rejection, in the interests of furthering the prosecution of this application, and without prejudice, Claim 14 has been amended to incorporate the limitation from "objected to" Claim 13. Thus, Claim 14 is allowable.

Claim 16

Claim 16 stands rejected as allegedly anticipated by *Swanson*. Even though Claim 16 is a method claim and otherwise differs from Claim 2 (such as in scope), many of the arguments regarding the patentability of Claim 2 are applicable to Claim 16. Thus, Claim 16 is allowable.

Dependent Claims

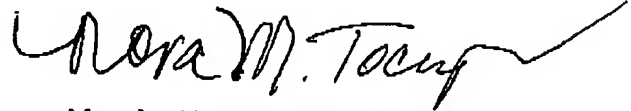
The remaining claims not specifically mentioned are all dependent claims, and as such are allowable, at least, as being dependent upon an allowable independent claim.

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Conclusion

The Patent Examiner is thanked for his consideration of the application, and these amendments and remarks. It is believed the application is in condition for allowance, and such action is respectfully requested. The Patent Examiner is invited to contact the undersigned via e-mail or telephone.

Respectfully submitted,



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